UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 27532

CSAH 123

OVER THE

CROW RIVER

DISTRICT 5 –HENNEPIN COUNTY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 5221 (CEI 110)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 27532, Piers 1 and 2, were in good condition with no structurally significant defects observed. A portion of the footing was exposed at Pier 1 with no undermining detected. The channel bottom around both piers appeared stable with no significant scour and no exposed footings and with an overall configuration essentially the same as was found during the previous inspection.

INSPECTION FINDINGS

(A) The footing was exposed along the north face from downstream nose to the upstream nose of Pier 1 with up to 1 (downstream shaft) foot of vertical exposure.

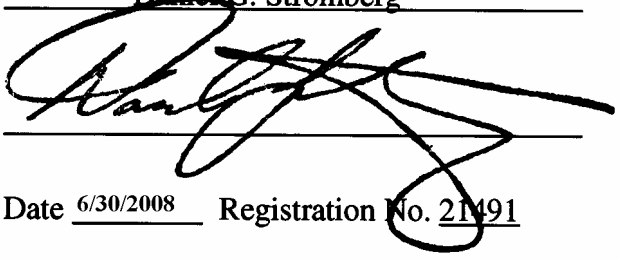
(B) The downstream portion of both piers exhibited small areas of concrete repair patches approximately 4 feet above the waterline.

RECOMMENDATIONS:

(A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

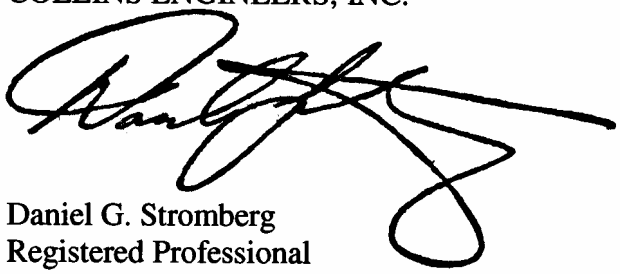
Daniel G. Stromberg



Date 6/30/2008 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 27532

Feature Crossed: Crow River

Feature Carried: CSAH 123

Location: District 5 - Hennepin County

Bridge Description: The structure consists of three spans of a concrete deck supported by multiple steel stringers. The superstructure is supported by two concrete piers and two concrete abutments. The piers are number 1 and 2 starting from the south end of the bridge.

2. INSPECTION DATA

Professional Engineer/Team Leader: Bradley A. Syler, P.E., S.E.

Dive Team: Clayton G. Brookins, Valerie Roustan

Date: October 17, 2007

Weather Conditions: Partly Cloudy, 60^{o} F

Underwater Visibility: 1.0 foot

Waterway Velocity: 1.0 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2.

General Shape: Piers 1 and 2 consist of two sections: an original rectangular concrete shaft with a pointed upstream nose and a rounded downstream nose that rests upon a rectangular footing/seal combination supported by concrete piles, and a newer rectangular concrete shaft with rounded noses that rests upon a rectangular footing supported by concrete piles.

Maximum Water Depth at Substructure Inspected: Approximately 6.2 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the parapet at the east end of Pier 2.

Water Surface: The waterline was approximately 28.5 feet below reference.
Assumed Waterline Elevation = 71.5.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

Item 61: Channel and Channel Protection: Code 7

Item 92B: Underwater Inspection: Code B/10/07

Item 113: Scour Critical Bridges: Code N/02

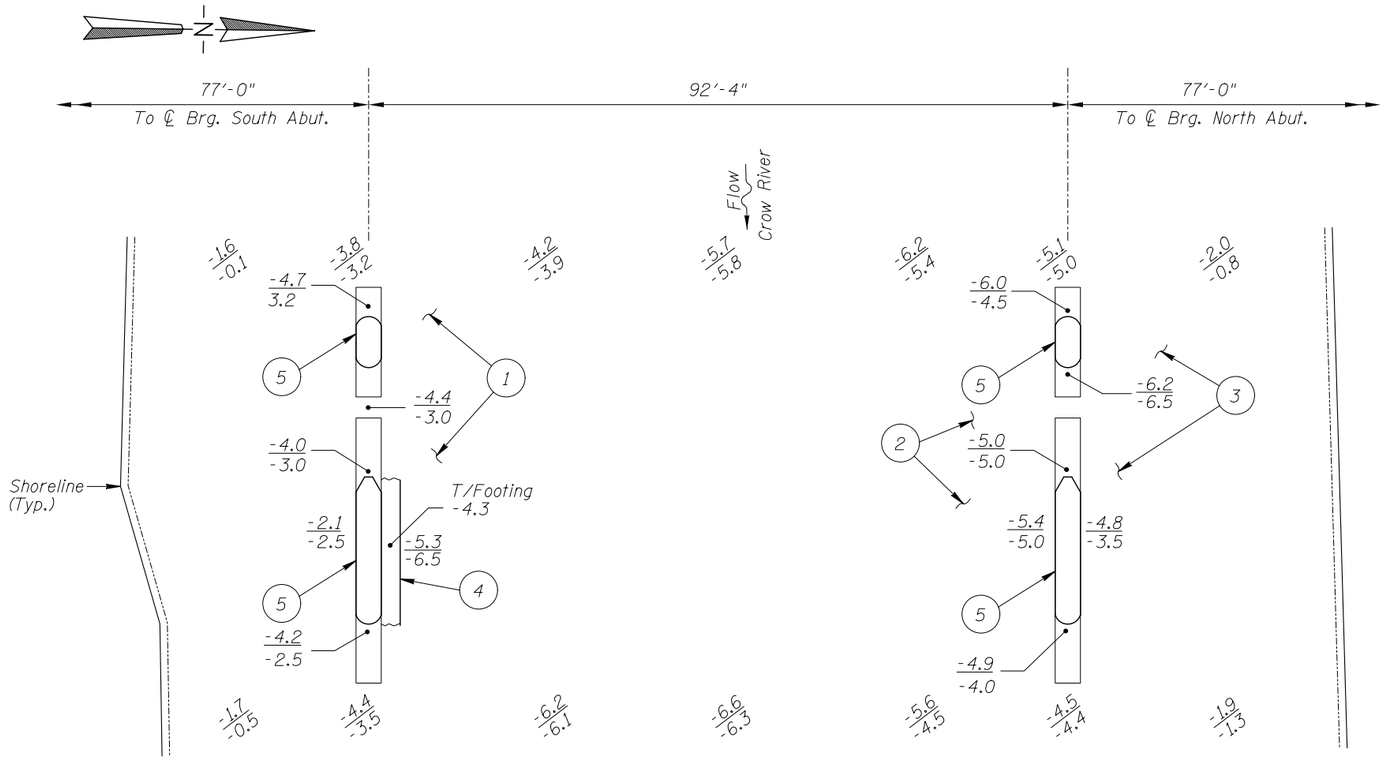
Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____ Yes X No

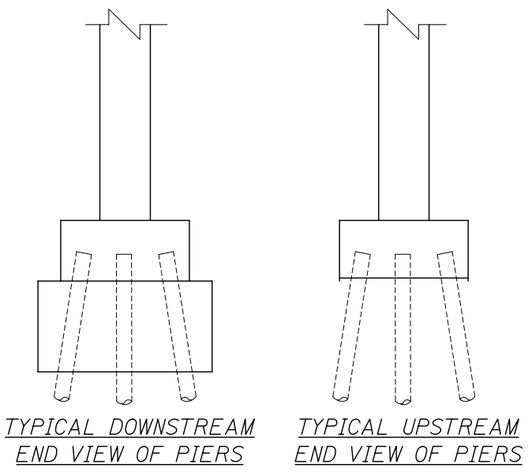
Photograph 1. Overall View of Structure, Looking Northeast.

Photograph 2. View of Pier 1, Looking Northeast.

Photograph 3. View of Pier 2, Looking Northeast.



SOUNDING PLAN



TYPICAL DOWNSTREAM
END VIEW OF PIERS

TYPICAL UPSTREAM
END VIEW OF PIERS

GENERAL NOTES:

1. Piers 1 and 2 were inspected underwater.
2. At the time of inspection on October 17, 2007, the waterline was located approximately 28.5 feet below the top of the parapet at the downstream end of Pier 2. Since insufficient bridge elevation information was available a reference elevation of 100.0 was assumed. Based on the assumed reference the waterline elevation was 71.5.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

INSPECTION NOTES:

(1) The channel bottom consisted of sandy gravel and 8-inch-diameter riprap with up to 4 inches of probe rod penetration.

(2) The channel bottom consisted of sandy gravel with up to 4 inches of probe rod penetration.

(3) The channel bottom consisted of riprap up to 2 feet in diameter with silty sand infilling with up to 3 inches of probe rod penetration.

(4) The footing was exposed along the north face of the downstream section of Pier 1 with up to 1 foot of vertical face exposure.

(5) Overall, the concrete was in smooth and sound condition with random minor areas of poor consolidation with penetrations of up to 1/8 inch.

Legend

-3.8	Sounding Depth (10/17/07)
-3.8	Sounding Depth (9/28/02)

Note:

All soundings based on 2007 waterline location.

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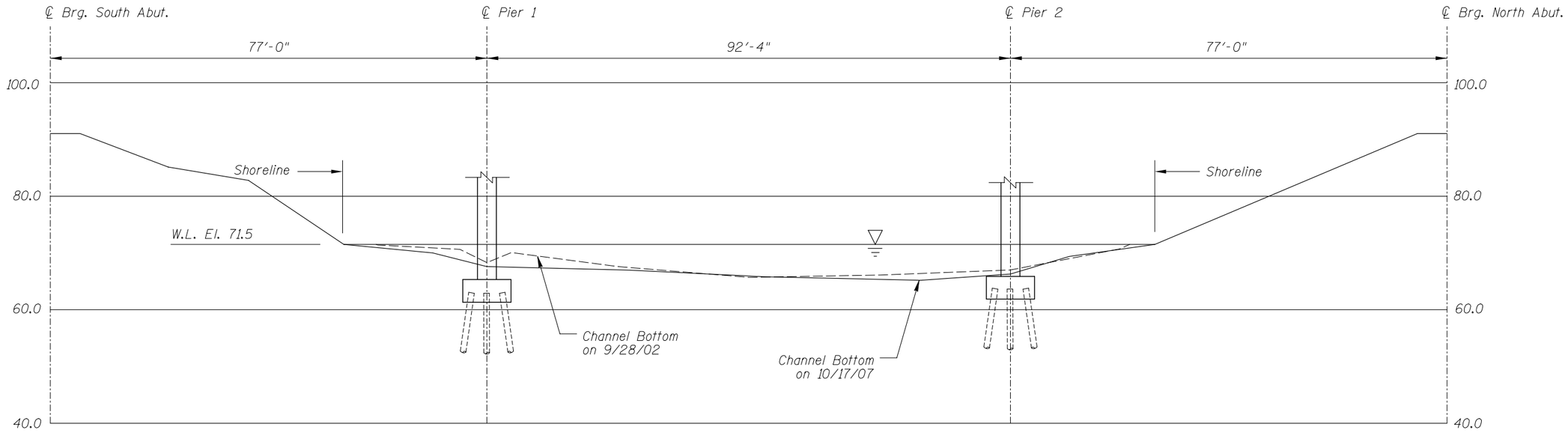
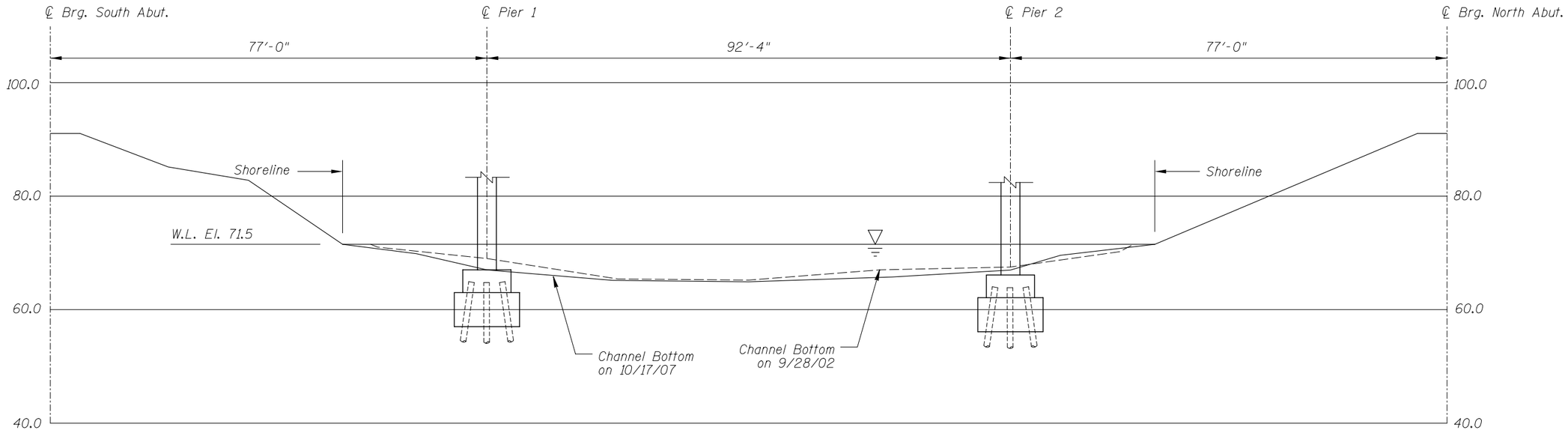
OVER THE CROW RIVER
DISTRICT 5, HENNEPIN COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: MDK	COLLINS ENGINEERS, INC. 123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com	Date: OCT. 2007
Checked By: DGS		Scale: NTS
Code: 52210110		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

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UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: MDK	COLLINS ENGINEERS, Inc. 123 North Wacker Drive Suite 300 Chicago, Il. 60606 (312) 704-9300 www.collinsengr.com	Date: OCT. 2007
Checked By: DGS		Scale: 1"=20'
Code: 52210110		Figure No.: 2

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: October 17, 2007
ON-SITE TEAM LEADER: Bradley A. Syler, P.E., S.E.
BRIDGE NO: 27532 WEATHER: Partly Cloudy, 60° F
WATERWAY CROSSED: Crow River
DIVING OPERATION: X SCUBA _____ SURFACE SUPPLIED AIR
_____ OTHER
PERSONNEL: Clayton G. Brookins, Valerie Roustan
EQUIPMENT: SCUBA, U/W Light, Scraper, Lead Line, Probe Rod, Camera
TIME IN WATER: 10:20 a.m.
TIME OUT OF WATER: 10:50 a.m.
WATERWAY DATA: VELOCITY 1.0 f.p.s
VISIBILITY 1.0 feet
DEPTH 6.2 feet at Pier 2
ELEMENTS INSPECTED: Piers 1 and 2
REMARKS: Overall, the concrete of the piers was in good and sound condition with no structurally significant defects observed. The footing was exposed along the north face from downstream nose to the upstream nose of Pier 1 (downstream shaft) with up to 1 foot of vertical exposure. The downstream portion of both piers exhibited small areas of concrete repair patches approximately 4 feet above the waterline.

FURTHER ACTION NEEDED: _____ YES X NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 27532
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Bradley A. Syler, P.E., S.E.
WATERWAY CROSSED Crow River

INSPECTION DATE October 17, 2007

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	5.3’	N	7	7	9	N	7	7	8	8	N	7	7	N	N	N	N	N
	Pier 2	6.2’	N	7	N	9	N	7	7	8	8	N	7	7	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the concrete of the piers was in good and sound condition with no structurally significant defects observed. The footing was exposed along the north face from downstream nose to the upstream nose of Pier 1 (downstream shaft) with up to 1 foot of vertical exposure. The downstream portion of both piers exhibited small areas of concrete repair patches approximately 4 feet above the waterline.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.